U.S. Pat. Nos. 5236759/6957926 Pat./Design Pat. Pending Copyright© 2011 CATEYE Co., Ltd. CCAT2W-110930 4

CE0678ⓘ

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by CatEye Co., Ltd. May void the user 's authority to operate the equipment.

⚠ WARNING / CAUTION

- Do not concentrate on the computer while riding. Ride safely!
- Install the magnet, sensor, and bracket securely. Check these periodically.
- If a child swallows a battery, consult a doctor immediately.
- Do not leave the computer in direct sunlight for a long period of time.
- Do not disassemble the computer.
- Do not drop the computer to avoid malfunction or damage.
- When using the computer installed on the bracket, change the **MODE** by pressing on the four dots below the screen, or by pressing on the **SSE** simultaneously, to start or stop the timer. Pressing hard on other areas may result in malfunction or damage to the computer.
- Be sure to tighten the dial of the FlexTight bracket by hand. Tightening it strongly using a tool, etc. may damage the screw thread.
- When cleaning the computer, bracket and sensor, do not use thinners, benzene, or alcohol.
- A temperature sensor is built in the computer. If the sensor is heated by direct sunlight or body heat, it may not indicate the temperature correctly.
- The altitude data with this unit is for reference only; accordingly, do not use this unit as a measuring device for professional use.
- Dispose of used batteries according to local regulations.
- LCD screen may be distorted when viewed through polarized sunglass lenses.

Before using the computer, please thoroughly read this manual and keep it for future reference.

Wireless Sensor

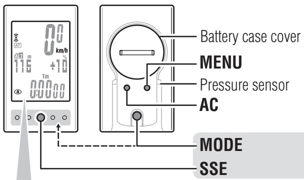
In order to prevent any interference with the sensor signal, the transmission range is designed to be 20 to 70 cm, in addition to use of the ID code. (This receiving range is only a reference.) Please note the following points.

- To use this unit, the sensor ID has to be set.
- Two different IDs, **ID1** and **ID2**, can be registered to this unit, which are identified automatically.
- The computer cannot receive when the distance between the sensor and computer is too long. Temperature drop and battery drain may worsen the receiving sensitivity even if they are within the transmission range.

Interference may occur, resulting in incorrect data, if the computer is:

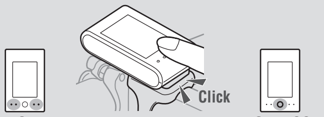
- Near a TV, PC, radio, motor, or in a car or train.
- Close to a railroad crossing, railway tracks, TV stations and/or radar base.
- Using with other wireless devices, or some particular battery lights.

Preparing the computer



km/h mph : Speed unit
Ⓐ Ⓑ : Wheel size icon
: Sensor signal reception icon

Operation of buttons when the computer is mounted on the bracket



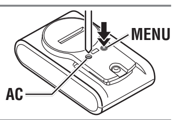
MODE
Press only the computer body.

MODE+SSE
Press the **SSE** button with the computer body together. **SSE** button by itself does not function.

When using the computer for the first time or resetting to the factory default setting, format according to the following procedure.

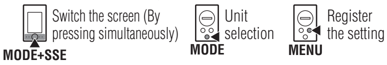
1 Format (initialize)

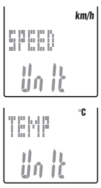
1. Press and hold the **MENU** button.
2. Press the **AC** button.
3. Release the **AC** button.
4. Release the **MENU** button.



2 Select the speed and temperature unit

When **MODE** and **SSE** are pressed simultaneously, "Speed unit" or "Temperature unit" can be selected. Select "**km/h**" or "**mph**" for the speed unit, and "**°C**" or "**°F**" for the temperature unit. Press **MENU** to register.





3 Enter the tire circumference

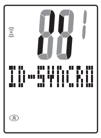
Enter the tire circumference of your bicycle in mm.
* Refer to the tire circumference reference table.





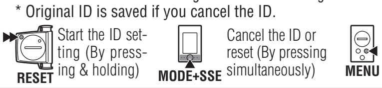
4 Set the sensor ID

Hold the computer body close to the sensor (20 - 70cm), and press and hold the **RESET** button on the sensor with a sharp object. Sensor will randomly generate an ID number for the computer body to receive, and displays on the screen. If successfully synchronized, screen will automatically move on to Clock setting screen.



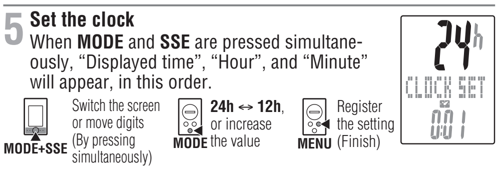
* When setting the sensor ID, place the sensor at least 20 cm (approximately 8 inches) away from the computer. Press and hold the **RESET** button, the sensor will send the ID when releasing the button.

* The computer is on standby for 5 minutes while setting the sensor ID. It displays "**ERROR**", and cancels the ID when no ID signal is received during the standby, or you press **MODE** and **SSE** simultaneously. Screen will move on to clock setting. Without the ID, speed cannot be detected and displayed. Be sure to set the sensor ID according to "Sensor ID setting" on the menu screen.
* Original ID is saved if you cancel the ID.



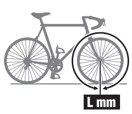
5 Set the clock

When **MODE** and **SSE** are pressed simultaneously, "Displayed time", "Hour", and "Minute" will appear, in this order.



Measure wheel circumference (L) of your bike

To get the most accurate calibration do a wheel roll out. With the valve stem perpendicular to the ground, mark the pavement at the valve stem. With the riders weight on the bike, roll the wheel one tire revolution in a straight line and mark the ground when the valve stem is perpendicular to the ground again. Measure the distance in millimeters. This is the most accurate wheel calibration number.



Tire circumference reference table

ETRTO	Tire size	L (mm)
47-203	12x1.75	935
54-203	12x1.95	940
40-254	14x1.50	1020
47-254	14x1.75	1055
40-305	16x1.50	1185
47-305	16x1.75	1195
54-305	16x2.00	1245
28-349	16x1-1/8	1290
37-349	16x1-3/8	1300
32-369	17x1-1/4 (369)	1340
40-355	18x1.50	1340
47-355	18x1.75	1350
32-406	20x1.25	1450
35-406	20x1.35	1460
40-406	20x1.50	1490
47-406	20x1.75	1515
50-406	20x1.95	1565
28-451	20x1-1/8	1545
37-451	20x1-3/8	1615
37-501	22x1-3/8	1770
40-501	22x1-1/2	1785
47-507	24x1.75	1890
50-507	24x2.00	1925
54-507	24x2.125	1965
25-520	24x1(520)	1753
	24x3/4 Tubuler	1785
28-540	24x1-1/8	1795
32-540	24x1-1/4	1905
25-559	26x1(559)	1913
32-559	26x1.25	1950
37-559	26x1.40	2005
40-559	26x1.50	2010
47-559	26x1.75	2023
50-559	**26x1.95**	**2050**
54-559	26x2.10	2068
57-559	26x2.125	2070
58-559	26x2.35	2083
75-559	26x3.00	2170
28-590	26x1-1/8	1970
37-590	26x1-3/8	2068
37-584	26x1-1/2	2100
	650C Tubuler 26x7/8	1920
20-571	650x20C	1938
23-571	650x23C	1944
25-571	650x25C 26x1(571)	1952
40-590	650x38A	2125
40-584	650x38B	2105
25-630	27x1(630)	2145
28-630	27x1-1/8	2155
32-630	27x1-1/4	2161
37-630	27x1-3/8	2169
18-622	700x18C	2070
19-622	700x19C	2080
20-622	700x20C	2086
23-622	**700x23C**	**2096**
25-622	700x25C	2105
28-622	700x28C	2136
30-622	700x30C	2146
32-622	700x32C	2155
	700C Tubuler	2130
35-622	700x35C	2168
38-622	700x38C	2180
40-622	700x40C	2200
42-622	700x42C	2224
44-622	700x44C	2235
45-622	700x45C	2242
47-622	700x47C	2268
54-622	29x2.1	2288
60-622	29x2.3	2326

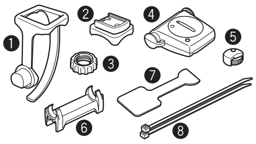
How to restart

After changing the battery, or when the computer displays an error, restart the computer according to the following procedure.

1. Press the **AC** button on the back of the computer.
2. Set the clock. Refer to "Preparing the computer 5".

* The stored sea level altitude, home altitude, speed unit, wheel size, sensor ID, countdown distance, selected wheel, AT setting, total distance and total altitude gain will not be changed after pressing the **AC** button.

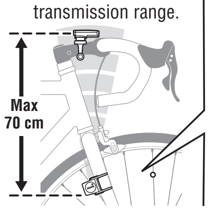
How to install the unit on your bicycle



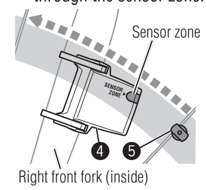
1. Bracket band
2. Bracket
3. Nut
4. Sensor
5. Magnet
6. Sensor rubber pad
7. Bracket rubber pad
8. Nylon ties (x2)

Install the sensor and magnet

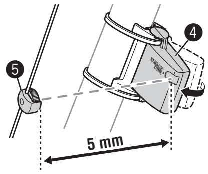
A The distance from the computer to the sensor is within the transmission range.



B The magnet passes through the sensor zone.

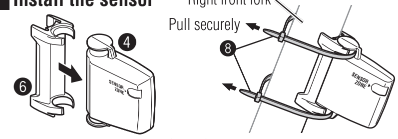


C The clearance between the sensor and magnet is 5 mm or less.



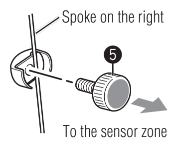
* The magnet may be installed anywhere on the spoke if the above installation conditions are satisfied.

1 Install the sensor



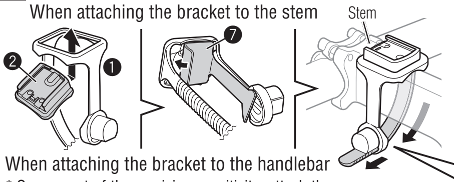
* Install the sensor to the front fork as high as possible.

2 Install the magnet



3 Attach the bracket to the stem or handlebar

When attaching the bracket to the stem

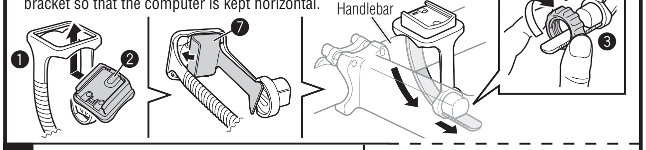




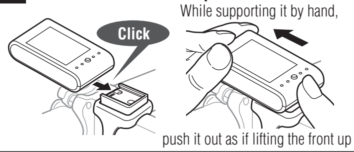
Caution:
Round off the cut edge of the bracket band to prevent injury.

When attaching the bracket to the handlebar

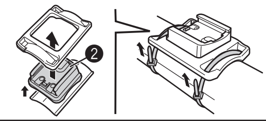
* On account of the receiving sensitivity, attach the bracket so that the computer is kept horizontal.



4 Remove/install the computer



* For wing type handlebar or oversized stem, bracket can be mounted using the Bracket Holder and nylon ties. (Option)



➡ * After installation, check that the speed is displayed on the computer when gently turning the front wheel. When it is not displayed, check the positions of **A**, **B**, and **C**.

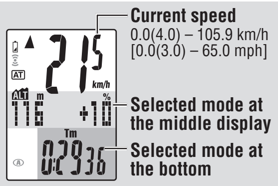
Operating the computer [Measuring screen]

Starting/Stopping measurement

You can select the Auto mode (automatic measuring) or manual mode. During measurement, **km/h** or **mph** flashes. The maximum speed and total distance are updated regardless of starting/stopping measurement.

- **Auto mode (AT on)**
  Measurements start automatically when the bicycle is in motion.
- **Manual mode**
  When the computer is mounted on the bracket, start/stop measuring by pressing the **MODE** and **SSE** buttons simultaneously.

* For switching between Auto and Manual mode, refer to "Auto mode setting" on the menu screen.



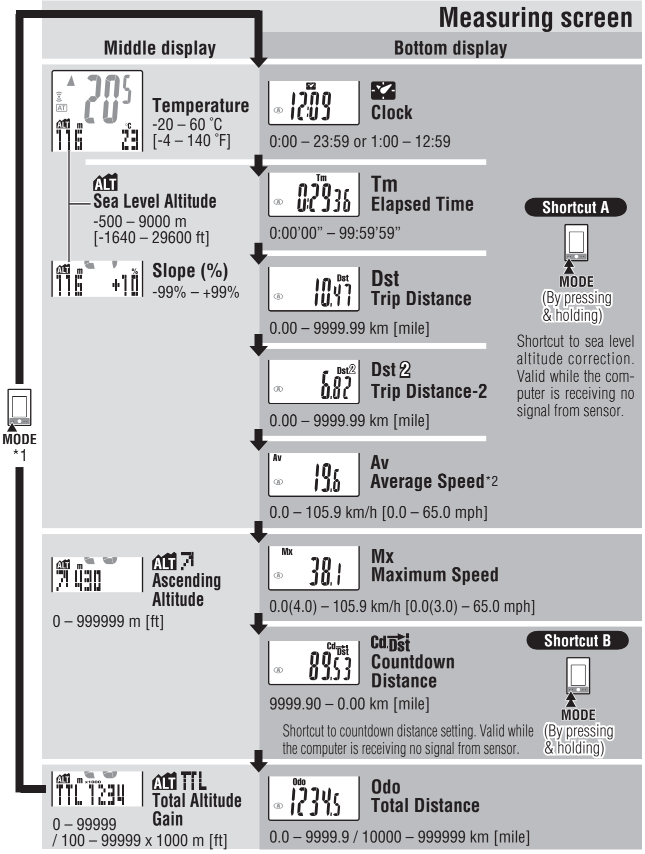
▲▼ : Pace arrow
Indicates whether the current speed is faster (▲) or slower (▼) than the average speed.

AT : Auto mode icon

: Low battery indicator of the computer

Switching computer function

Pressing the **MODE** changes the middle/bottom row display.



*1 With the computer installed on the bracket, press on the four raised dots on the face of the computer.

*2 If **Tm** exceeds approximately 27 hours or **Dst** exceeds 9999.99 km, **.E** (Error) is displayed as the average speed. Reset data.

Resetting data

While displaying any data other than **Dst-2**, pressing and holding the **MODE** and **SSE** simultaneously resets the measurement data to 0. While displaying **Dst-2**, pressing and holding the **MODE** and **SSE** simultaneously resets only **Dst-2** to 0. In both cases, the total distance and total altitude gain are not reset.

Power-saving mode

If the computer has not received a signal for 10 minutes, power-saving mode will activate and only the clock will be displayed. When the computer receives a sensor signal again, the measuring screen reappears. If 60 minutes' inactivity elapses, power-saving mode will change to **SLEEP** mode. Pressing the **MODE** in **SLEEP** mode brings up the measuring screen.

Altitude measurement

This unit detects the change in atmospheric pressure and temperature using a pressure sensor built in the computer, and converts it to the altitude using the relation between the altitude and pressure of ISO 2533 (Standard atmosphere), which was developed based on the international standard atmosphere specified by the International Civil Aviation Organization (ICAO). Accordingly, the measurements tend to change, even at the same point, according to the atmospheric pressure due to the weather condition. Furthermore, the measurements may change more than 30 m from the early morning to the evening even under a stabilized weather condition.
The measurements may be incorrect in the following place or environment.

- When the atmospheric pressure and temperature change significantly due to a rapid weather change.
- In the place where the atmospheric pressure is regulated, such as inside an airplane.
- The altitude data may change temporarily when the temperature changes rapidly by getting out of a room, etc. It may return to a correct value after a while.

Altitude measurement

This unit has four altitude-related functions and temperature function.

Sea level altitude.... The current sea level altitude is displayed.
* For effective use of the sea level altitude, refer to "Sea level altitude correction".

Slope .... Measures slope in percent unit, where 45 degree angle being 100%.
* It is updated every 3 seconds, calculating from several times of the change in altitude and the trip distance. Slope update may be delayed. Abnormal data may also be temporarily displayed when speed quickly changes or during low-speed.

Ascending altitude... Accumulation of ascent from the reset point to the current point is displayed.

Total altitude gain ... The total altitude gain is displayed.

Temperature........... The current temperature is displayed.
* It is updated when the measurement screen is displayed (while measuring: every 3 seconds, while not riding: every 20 seconds).

* The altitude measurement is updated every 3 seconds during measurement (when counting the elapsed time), but not updated when measurement stops.

Caution:
When Auto mode is Off, elapsed time counts even if the bicycle is not in motion. After measurement, be sure to press MODE and SSE simultaneously to stop measuring.

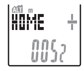
Sea level altitude correction

This unit determines the altitude by converting the change in atmospheric pressure and temperature; therefore, it may cause deviation from the actual sea level altitude. It is recommended to correct the sea level altitude just before measurement, using either the following methods.

- **ADJUST (sea level altitude correction): Enter the altitude at the current point.**
  Enter the actual value at the point where the sea level altitude is known, such as along the seashore, or at a sign on the mountain, etc.
  * Press and hold **MODE** and **SSE** simultaneously on the setting screen to reset the corrected value to the default (a value according to ISO2533).



- **HOME (home altitude setting): Preset a specific sea level altitude.**
  Preset the sea level altitude at your home in advance. Move to the **HOME** screen, and then return to the measuring screen by pressing **MENU** or the relevant shortcut. Then, the sea level altitude changes to the preset value. You can start with the correct sea level altitude by setting home altitude before stating from your home.



* The sea level altitude is corrected on the menu screen "Sea level altitude correction". Move to the sea level altitude correction screen by pressing **MENU** or the relevant shortcut from the measuring screen.

Countdown distance

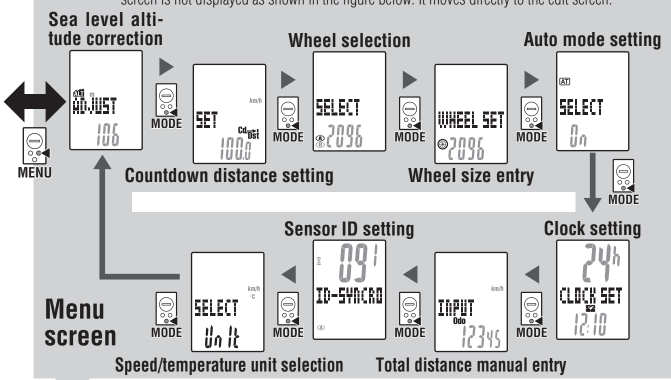
Once the target trip distance is set, the unit displays the countdown distance to the target, and notifies at arrival. When the unit reaches the target distance, the countdown distance appears and the value flashes. The screen returns to the original display in 5 seconds.

* The target distance is set on the menu screen "Countdown distance setting". Move to the countdown distance setting screen by pressing **MENU**, **MODE**, or the relevant shortcut from the measuring screen.

Changing the computer settings [Menu screen]

Pressing **MENU** on the measuring screen moves to the menu screen for setup change. Once inside the menu screen, press the **MODE** button to scroll through setup items. Press **MODE+SSE** to enter the edit screens. Change cannot be done if there is an incoming signal and timer is active.

Shortcut : When using a shortcut, the sea level altitude correction screen or the countdown distance setting screen is not displayed as shown in the figure below. It moves directly to the edit screen.





Setting change (by pressing simultaneously)

* After changing, be sure to press **MENU** to register the setting.
* If the setting screen is not touched for a minute, the measuring screen appears without data changes.

Sea level altitude correction
Shortcut A : **MODE** (By pressing & holding) → Back to the previous measuring screen
.... Select **ADJUST** (sea level altitude correction) or **HOME** (home altitude setting) by pressing **MODE**. When **MODE** and **SSE** are pressed simultaneously, "**+/-** selection" or "Move digit" can be selected, and pressing **MODE** increases the **+/-** selection or the value. Enter the desired altitude.
* For details, refer to "Sea level altitude correction".

Countdown distance setting
Shortcut B : **MODE** (By pressing & holding) → Back to the previous measuring screen
.... Pressing **MODE** increases the value and pressing **MODE** and **SSE** simultaneously moves to the next digit.

Wheel selection ..... Toggle between the specified wheel size (tire circumference) Ⓐ and Ⓑ. Use this function if the computer is to be shared between two bicycles. Pressing **MODE** toggles between Ⓐ and Ⓑ.

Wheel size entry .... Pressing **MODE** increases the value and pressing **MODE** and **SSE** simultaneously moves to the next digit. To enter the wheel size Ⓑ, display Ⓑ using "Wheel selection".

Auto mode setting... Press **MODE** to select **ON** or **OFF**.

Clock setting........... Operate as described in "Preparing the computer 5".

Total distance manual entry
.... Before re-initializing the computer, note the total distance. This reading will later allow you to enter the total distance manually. Pressing **MODE** increases the value and pressing **MODE** and **SSE** simultaneously moves to the next digit.

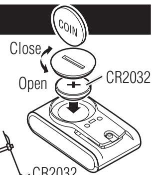
Sensor ID setting.... Pressing **MODE** changes to **ID1** or **ID2**, and pressing **MODE** and **SSE** simultaneously moves to ID setting. Set the ID as described in "Preparing the computer 4".
* **ID2** is used when the computer is shared with the second sensor installed to another bicycle. The computer will identify **ID1** and **ID2** automatically after waking up from Power-saving mode.

Speed/temperature unit selection
.... Operate as described in "Preparing the computer 2".

Maintenance

To clean the computer or accessories, use diluted neutral detergent on a soft cloth, and wipe it off with a dry cloth.

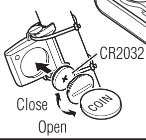
Replacing the battery



Computer

If [battery icon] turns on, replace the battery. Install a new lithium battery (CR2032) with the (+) side facing upward. After the battery change, go through the restart operation, by pressing the **AC** button.

* Then restart the computer according to “How to restart”.





Sensor

Replace the battery when the Speed digit flashes while riding. After replacement, check the positions of the sensor and magnet.

* After the battery is replaced, ID setting is required again. For details, refer to “Sensor ID setting” on the menu screen.

Troubleshooting

MODE does not work when the computer is mounted on its bracket.

Check that there is no dirt between the bracket and the computer.
Wash off the bracket with water to get rid of any dirt.

The sensor signal reception icon does not flash (the speed is not displayed). (Move the computer near the sensor, and turn the front wheel. If the sensor signal reception icon flashes, this trouble may be a matter of transmission distance due to battery drain, but not any malfunction.)

Set the sensor ID.
Set the ID according to “Sensor ID setting” on the menu screen.

Check that the clearance between the sensor and magnet is not too large. (Clearance: within 5 mm)
Check that the magnet passes through the sensor zone correctly.
Adjust the positions of the magnet and sensor.

Check that the distance between the computer and sensor is correct. (Distance: within 20 to 70 cm)
Install the sensor within the specified range.

Is the computer or sensor battery weak? In winter, battery performance diminishes.
Replace with new batteries. After replacement, follow the procedure “Replacing the battery”.

Incorrect data of the sea level altitude.

Is the sea level altitude corrected?
The sea level altitude may vary due to changes in atmospheric pressure. Correct the sea level altitude according to “Sea level altitude correction” on the menu screen.

No display.

Is battery in the computer run down?
Replace it. Then restart the computer referring to “How to restart”.

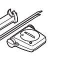
Incorrect data appear.

Restart the computer referring to “How to restart”.

Specification

Battery..........Computer : Lithium battery (CR2032) x 1, Sensor : Lithium battery (CR2032) x 1
Battery life....Computer : Approx. 10 months (If the computer is used for 1 hour/day; the battery life will vary depending on the conditions of use.)
Sensor : Approx. 8 months (If the computer is used for 1 hour/day; the battery life will vary depending on the conditions of use.)
* This is the average figure of being used under 20 °C temperature and the distance between the computer and the sensor is 65 cm.
Controller.....8 bite, 1-chip microcomputer (Crystal controlled oscillator)
Display.........Liquid crystal display
Sensor..........No contact magnetic sensor
Transmission distance .... Between 20 and 70 cm
Wheel circumference range... 0100 mm - 3999 mm (Initial value A: 2096 mm, B: 2050 mm)
Working temperature.......... 32 °F - 104 °F (0 °C - 40 °C) (This product will not display appropriately when exceeding the Working Temperature range. Slow response or black LCD at lower or higher temperature may happen respectively.)
Dimensions/weight .... Computer : 2-1/4 x 1-11/32 x 19/32 (57 x 34 x 15 mm) / 1.05 oz (30 g)
Sensor : 1-41/64 x 1-3/8 x 19/32 (41.5 x 35 x 15 mm) / 0.53 oz (15 g)

* The factory-loaded battery life might be shorter than the above-mentioned specification.
* The specifications and design are subject to change without notice.

Standard parts						Optional parts
#160-2890 Parts kit 	**#160-2880** Speed sensor 	**#160-0280N** Bracket band 	**#160-2193** Bracket 	**#169-9691N** Wheel magnet 	**#166-5150** Lithium battery (CR2032) 	**#160-2770** Bracket holder 